

ORANGE COUNTY

Site name: Bolsa Chica State Marine Park

Year established: 1973

Approximate Area: not available **Approximate Shoreline length:** not available

Approximate Depth range (feet): not available

Habitat types: Estuarine tidal lagoon and channels with salt marsh habitat.

This MPA will be greatly expanded in the near future with restoration to full, or partial, tidal influence to several hundred more acres and a new ocean inlet at the southern end of the site.

Surrounding habitat types: Coastal lowlands and bluffs, coastal beaches and urban development.

Summary of existing regulations: Take of all living marine resources is prohibited except the recreational hook and line take of species other than marine aquatic plants from designated areas around outer Bolsa Bay. Boating, swimming, wading, and diving are prohibited within the park. No person, except State and local law enforcement officers, fire suppression agencies and employees of the department in the performance of their official duties or persons possessing written permission from the department or employees of Signal Corporation and its invitees for the purpose of carrying out oil and gas operations, shall enter this park and remain therein except on established trails, paths, or other designated areas.

Primary objectives: This area was originally designated as an ecological reserve. Fish and Game Code Section 1580 (ecological reserves) states that "the policy of the state is to protect threatened or endangered native plants, wildlife, or aquatic organisms or specialized habitat types, both terrestrial and non-marine aquatic, or large heterogeneous natural gene pools for the future use of mankind through the establishment of ecological reserves." Although the language does not specifically refer to ecological reserves in marine areas, the Fish and Game Commission has extended this policy to those areas.

Existing enforcement: Included as part of normal Department of Fish and Game marine patrol activities for this general area based on available patrol resources and level of fishery activity in the area.

Baseline and ongoing monitoring and research studies: None found.

Basic Evaluation: Insufficient information for evaluation at this time.

Site name: Upper Newport Bay State Marine Park

Year established: 1975

Approximate Area: 0.64 nm² **Approximate Shoreline length:** 12.39 nm

Approximate Depth range (feet): not available

Habitat types: Estuarine bay with tidal channels, mud flats and salt marsh habitat.

Surrounding habitat types: Coastal lowlands and bluffs, and urban development.

Summary of existing regulations: Take of all living marine resources is prohibited except the recreational hook and line take of species other than kelp. Swimming is permitted only in the area between North Star Beach and mid-channel. Boats are limited to speeds less than five miles per hour. Shoreline access is limited to established trails, paths, or other designated areas.

Primary objectives: This area was originally designated as an ecological reserve. Fish and Game Code Section 1580 (ecological reserves) states that "the policy of the state is to protect threatened or endangered native plants, wildlife, or aquatic organisms or specialized habitat types, both terrestrial and nonmarine aquatic, or large heterogeneous natural gene pools for the future use of mankind through the establishment of ecological reserves." Although the language does not specifically refer to ecological reserves in marine areas, the Fish and Game Commission has extended this policy to those areas.

Existing enforcement: Included as part of normal Department of Fish and Game marine patrol activities for this general area based on available patrol resources and level of fishery activity in the area.

Baseline and ongoing monitoring and research studies: None found.

Basic Evaluation: Insufficient information for evaluation at this time.

Site name: Robert E. Badham State Marine Park

Year established: 1968

Approximate Area: 0.02 nm²

Approximate Shoreline length: 0.61 nm

Approximate Depth range (feet): 0 to 10

Habitat types: Intertidal: sandy beach, rocky outcrop. Subtidal: patchy rock reef with sandy bottom.

Surrounding habitat types: Similar to the site. Rocky points and kelp forest reefs. Sandy areas in coves and offshore.

Summary of existing regulations: Take of all living marine resources is prohibited except the recreational take of: lobster, rockfish (family Scorpaenidae), greenling, lingcod, cabezon, yellowtail, mackerel, bluefin tuna, kelp bass, spotted sand bass, barred sand bass, sargo, croaker, queenfish, corbina, white seabass, opaleye, halfmoon, surfperch (family Embiotocidae), blacksmith, barracuda, sheephead, bonito, California halibut, sole, turbot, and sanddab.

Primary objectives: This area was originally designated as a marine life refuge. Although no specific objectives were provided for the marine life refuge designation, Fish and Game Code Section 10500 states that "Except under specific permit or authorization, it is unlawful: (f) To take or possess any invertebrate or specimen of marine plant life in a marine life refuge." In addition, individual marine life refuges may have been established for a variety of site specific purposes. This and several other marine life refuges along the Orange County coast were established in the late 1960's and 1970's to primarily protect intertidal (tidepool) organisms from collecting by the general public and large educational groups.

Existing Enforcement: Included as part of normal Department of Fish and Game marine patrol activities for this general area based on available patrol resources and level of fishery activity in the area. City of Newport Beach has a decent program to lead visitors into the MPA and educate the public on sensitivity of the resources. City lifeguards may also provide an added enforcement presence.

Baseline and ongoing monitoring and research studies: Historic algae surveys were performed in 1957-59 by E. Yale Dawson. These were repeated in the late 1960s by T. Widdowson and in the 1970s and early 1980s by Ronald Thom. Steve Murray resurveyed Dawson's transects at Little Corona del Mar during spring 1999. Mark Littler established a site at Little Corona del Mar during the 1975-79 BLM-sponsored studies of rocky intertidal biota. Steve Murray of CSU Fullerton re-assessed the distributions and abundances of rocky intertidal populations at Little Corona Del Mar to examine decadal scale changes in intertidal systems.

Basic Evaluation: Provides some level of protection to invertebrates, plants and some fishes in a southern California coastal nearshore reef habitat. Heavy public use in the site and nearby, including illegal take and incidental trampling, and allowing most game species to be taken may have limited the effectiveness of protection. Enforcement presence often limited to times of highest use, while impacts incidental to visitation such as trampling are not the result of illegal activity. Local governments (Orange County Coastal Coalition) are interested in maintaining and increasing resource protection here.

Published references related to use of this MPA as a research tool: 38, 39, 189, 110, 128, 208

Unpublished references related to use of this MPA as a research tool: 107, 108, 109, 65

Site name: Crystal Cove State Marine Conservation Area

Year established: 1982

Approximate Area: 0.16 nm²

Approximate Shoreline length: 2.85 nm

Approximate Depth range (feet): 0 to 60

Overlapping area: Irvine Coast State Marine Park

Habitat types: Rocky platforms and sandy beaches. Extending out into the subtidal zone. As for most of this section of the coast, rocky benches are heavily sand influenced with rocky platforms and headlands separated by intermittent sandy pocket beaches. Most of the upper shoreline is sandy beach.

Surrounding habitat types: Similar to the site to the northwest with sandy beach and rocky points to the southeast. Sandy with scattered reefs offshore.

Summary of existing regulations:

Only the following species may be taken recreationally: finfish, chiones, clams, cockles, rock scallops, native oysters, crabs, lobsters, ghost shrimp, sea urchins, mussels and marine worms except that no worms may be taken in any mussel bed unless taken incidentally to the take of mussels.

Only the following species may be taken commercially: finfish, crabs, ghost shrimp, jackknife clams, sea urchins, algae (except giant kelp and bull kelp) and worms except that no worms may be taken in any mussel bed, nor may any person pick up, remove, detach from the substrate any other organisms, or break up, move or destroy any rocks or other substrate or surfaces to which organisms are attached.

Primary objectives: To provide additional protection to marine life and habitat within the MPA and to inform the public about the local marine life and need for protection.

Existing Enforcement: Included as part of normal Department of Fish and Game marine patrol activities for this general area based on available patrol resources and level of fishery activity in the area. State Park rangers, lifeguards and other staff provide added on-site enforcement presence.

Baseline and ongoing monitoring and research studies: MMS-sponsored Shoreline Monitoring Program that follows abundances of key species and documents site changes at one rocky platform in the MPA; various Environmental Impact Reports have been prepared during the earlier period of MPA establishment and to support applications for onshore development projects. Historic algae surveys were performed in 1957-59 by E. Yale Dawson. These were repeated in the late 1960s by T. Widdowson and in the 1970s and early 1980s by Ronald Thom. Steve Murray resurveyed Dawson=s transects at Crystal Cove during spring 1999.

Basic Evaluation: Provides some level of protection to most invertebrates (except certain "game species") and plants in a southern California coastal nearshore reef habitat. Heavy public use within the site and nearby, including illegal take and incidental trampling, and allowing most game species to be taken may have limited the effectiveness of protection. Enforcement presence often limited to times of highest use, while impacts incidental to visitation such as trampling are not the result of illegal activity. This area encompasses the Irvine Coast State Marine Park so the level of protection in that portion (600 feet from shore) is actually greater than provided for by conservation area regulations.

The adjacent onshore area is being developed for residential and commercial uses which have the potential to increase uses and impacts to the marine resources in this MPA. Local governments (Orange County Coastal Coalition) are interested in maintaining and increasing resource protection here. The State Parks General Plan for this site recommends an area with more protective regulations be established off the Pelican Point area.

Published references related to effectiveness of this MPA: 122, 127

Unpublished references related to effectiveness of this MPA: 185, 87, 173

Published references related to use of this MPA as a research tool: 38, 39, 189, 127, 208

Unpublished references related to use of this MPA as a research tool: 185, 87, 172, 173

Site name: Irvine Coast State Marine Park

Year established: 1971

Approximate Area: 0.31 nm²

Approximate Shoreline length: 2.85 nm

Approximate Depth range (feet): 0 to 60

Overlapping area: Crystal Cove State Marine Conservation Area

Habitat types: Rocky platforms and sandy beaches. Extending out into the subtidal zone. As for most of this section of the coast, rocky benches are heavily sand influenced with rocky platforms and headlands separated by intermittent pocket sandy beaches. Most of the upper shoreline is sandy beach.

Surrounding habitat types: Similar to the site.

Summary of existing regulations: Take of all living marine resources is prohibited except the recreational take of: lobster, rockfish (family Scorpaenidae), greenling, lingcod, cabezon, yellowtail, mackerel, bluefin tuna, kelp bass, spotted sand bass, barred sand bass, sargo, croaker, queenfish, corbina, white seabass, opaleye, halfmoon, surfperch (family Embiotocidae), blacksmith, barracuda, sheephead, bonito, California halibut, sole, turbot, and sanddab.

Primary objectives: This area was originally designated as a marine life refuge. Although no specific objectives were provided for the marine life refuge designation, Fish and Game Code Section 10500 states that "Except under specific permit or authorization, it is unlawful: (f) To take or possess any invertebrate or specimen of marine plant life in a marine life refuge." In addition, individual marine life refuges may have been established for a variety of site specific purposes. This and several other marine life refuges along the Orange County coast were established in the late 1960's and 1970's to primarily protect intertidal organisms from collecting by the general public and large educational groups.

Existing Enforcement: Included as part of normal Department of Fish and Game marine patrol activities for this general area based on available patrol resources and level of fishery activity in the area. State Park rangers, lifeguards and other staff provide an added on-site enforcement presence.

Baseline and ongoing monitoring and research studies: MMS-sponsored Shoreline Monitoring Program that follows abundances of key species and documents site changes at one rocky platform in the MPA; various Environmental Impact Reports have been prepared during the earlier period of MPA establishment and to support applications for onshore development projects. Historic algae surveys were performed in 1957-59 by E. Yale Dawson. These were repeated in the late 1960s by T. Widdowson and in the 1970s and early 1980s by Ronald Thom. Steve Murray resurveyed Dawson's transects at Crystal Cove during Fall 1998.

Basic Evaluation: Provides some level of protection for most invertebrates, plants and some fishes in a southern California coastal nearshore reef habitat. Heavy public use within the site and nearby, including illegal take and incidental trampling, and allowing most game species to be taken may have limited the effectiveness of protection. Enforcement presence often limited to times of highest use, while impacts incidental to visitation such as trampling are not the result of illegal activity. Local governments (Orange County Coastal Coalition) are interested in maintaining and increasing resource protection here.

Published references related to effectiveness of this MPA: 122, 127

Unpublished references related to effectiveness of this MPA: 185, 87, 173

Published references related to use of this MPA as a research tool: 38, 39, 189, 127, 208

Unpublished references related to use of this MPA as a research tool: 185, 87, 172, 173

Site name: Laguna Beach State Marine Park

Year established: 1968, extended in 1993

Approximate Area: 0.09 nm²

Approximate Shoreline length: 0.75 nm

Approximate Depth range (feet): 0 to 60

Overlapping area: Heisler Park State Marine Reserve

Habitat types: Rocky platforms and sandy beaches. Extending out into the subtidal zone. As for most of this section of the coast, rocky benches are heavily sand influenced with rocky platforms and headlands separated by intermittent pocket sandy beaches. Some of the sandy beaches of Laguna are heavily used by tourists. Most of the upper shoreline along this stretch of coastline, except for headlands, is sandy beach.

Surrounding habitat types: Similar to site. Rocky points and subtidal reefs with extensive sandy beaches and coves.

Summary of existing regulations: Take of all living marine resources is prohibited except the recreational take of: lobster, rockfish (family Scorpaenidae), greenling, lingcod, cabezon, yellowtail, mackerel, bluefin tuna, kelp bass, spotted sand bass, barred sand bass, sargo, croaker, queenfish, corbina, white seabass, opaleye, halfmoon, surfperch (family Embiotocidae), blacksmith, barracuda, sheephead, bonito, California halibut, sole, turbot, and sanddab.

Primary objectives: This area was originally designated as a marine life refuge. Although no specific objectives were provided for the marine life refuge designation, Fish and Game Code Section 10500 states that "Except under specific permit or authorization, it is unlawful: (f) To take or possess any invertebrate or specimen of marine plant life in a marine life refuge." In addition, individual marine life refuges may have been established for a variety of site specific purposes. This and several other marine life refuges along the Orange County coast were established in the late 1960's and 1970's to primarily protect intertidal organisms from collecting by the general public and large educational groups.

Existing Enforcement: Included as part of normal Department of Fish and Game marine patrol activities for this general area based on available patrol resources and level of fishery activity in the area. City of Laguna Beach lifeguards are trained in MPA regulations and will issue advisories and warnings, if needed. Orange County Sheriff Deputies are trained in MPA enforcement and devote some patrol time to this area.

Baseline and ongoing monitoring and research studies: MMS-sponsored Shoreline Monitoring Program that follows abundances of key species and documents site changes at two rocky platforms in the MLRS: Shaw=s Cove and Treasure Island; EIS work required for onshore developments will also result in some data of scientific value on coastal populations and conditions. Historic algae surveys were performed in 1957-59 by E. Yale Dawson at a site inside Heisler Park. These surveys were repeated in the late 1960s by T. Widdowson and in the 1970s and early 1980s by Ronald Thom. Steve Murray resurveyed Dawson=s transects at Laguna Beach during Fall 1998.

Basic Evaluation: Provides some level of protection for most invertebrates, all plants and some fishes in a southern California coastal nearshore reef habitat. Heavy public use within the site and nearby, including illegal take and incidental trampling, and allowing most game species to be taken may have

limited the effectiveness of protection. Enforcement presence often limited to times of highest use, while impacts incidental to visitation such as trampling are not the result of illegal activity. Local governments (Orange County Coastal Coalition) are interested in maintaining and increasing resource protection here.

Published references related to effectiveness of this MPA: 122, 127

Unpublished references related to effectiveness of this MPA: 185, 87, 172

Published references related to use of this MPA as a research tool: 127

Unpublished references related to use of this MPA as a research tool: 185, 87, 172, 173

Site name: Heisler Park State Marine Reserve

Year established: 1973

Approximate Area: 0.04 nm²

Approximate Shoreline length: 0.39 nm

Approximate Depth range (feet): 0 to 60

Overlapping area: Laguna Beach State Marine Park

Habitat types: Rocky platforms and sandy beaches. Extending out into the subtidal zone. As for most of this section of the coast, rocky benches are heavily sand influenced with rocky platforms and headlands separated by intermittent pocket sandy beaches. Main Beach in Laguna is very heavily used by tourists.

Surrounding habitat types: Similar to the site. Rocky points and benches, sandy coves with scattered offshore reefs.

Summary of existing regulations: No take is allowed. Boats may be launched and retrieved only in designated areas and may be anchored within the MPA only during daylight hours.

Primary objectives: This area was originally designated as an ecological reserve. Fish and Game Code Section 1580 (ecological reserves) states that "the policy of the state is to protect threatened or endangered native plants, wildlife, or aquatic organisms or specialized habitat types, both terrestrial and nonmarine aquatic, or large heterogeneous natural gene pools for the future use of mankind through the establishment of ecological reserves." Although the language does not specifically refer to ecological reserves in marine areas, the Fish and Game Commission has extended this policy to those areas. A specific purpose of the Heisler Park Ecological Reserve was to completely protect from take, a portion of the local nearshore kelp forest habitat.

Existing Enforcement: Included as part of normal Department of Fish and Game marine patrol activities for this general area based on available patrol resources and level of fishery activity in the area. City of Laguna Beach lifeguards are trained in MPA regulations and will issue advisories and warnings, if needed. Orange County Sheriff Deputies are trained in MPA enforcement and devote some patrol time to this area.

Baseline and ongoing monitoring and research studies: Historic algae surveys were performed in 1957-59 by E. Yale Dawson at a site inside Heisler Park. These surveys were repeated in the late 1960s by T. Widdowson and in the 1970s and early 1980s by Ronald Thom. Steve Murray resurveyed Dawson=s transects at Laguna Beach during Fall 1998.

Basic Evaluation: Provides complete protection to all marine life in a southern California coastal nearshore reef habitat. The site=s small size and heavy public use within the site and nearby areas appears to limit the effectiveness of protection. Despite these factors, barred sand bass and kelp bass had higher densities and larger sizes in this MPA than in nearby areas subject to harvesting pressure indicating that this site is protecting these desirable species to a greater extent than general fishery regulations alone in areas elsewhere. Local governments (Orange County Coastal Coalition) are interested in maintaining and increasing resource protection here.

Published references related to use of this MPA as a research tool: 38, 39, 189, 208

Site name: South Laguna Beach State Marine Park

Year established: 1968

Approximate Area: 0.05 nm²

Approximate Shoreline length: 0.52 nm

Approximate Depth range (feet): 0 to 60

Habitat types: Substrate in this site is approximately 50% hard and 50% soft with rocky points and sandy coves, some offshore rocks.

Surrounding habitat types: Similar to the site. Rocky points, sandy beaches and coves with some offshore rocks and reefs.

Summary of existing regulations: Take of all living marine resources is prohibited except the recreational take of: lobster, rockfish (family Scorpaenidae), greenling, lingcod, cabezon, yellowtail, mackerel, bluefin tuna, kelp bass, spotted sand bass, barred sand bass, sargo, croaker, queenfish, corbina, white seabass, opaleye, halfmoon, surfperch (family Embiotocidae), blacksmith, barracuda, sheephead, bonito, California halibut, sole, turbot, and sanddab.

Primary objectives: This area was originally designated as a marine life refuge. Although no specific objectives were provided for the marine life refuge designation, Fish and Game Code Section 10500 states that "Except under specific permit or authorization, it is unlawful: (f) To take or possess any invertebrate or specimen of marine plant life in a marine life refuge." In addition, individual marine life refuges may have been established for a variety of site specific purposes. This and several other marine life refuges along the Orange County coast were established in the late 1960's and 1970's to primarily protect intertidal organisms from collecting by the general public and large educational groups.

Existing Enforcement: Included as part of normal Department of Fish and Game marine patrol activities for this general area based on available patrol resources and level of fishery activity in the area. City of Laguna Beach lifeguards are trained in MPA regulations and will issue advisories and warnings, if needed. Orange County Sheriff Deputies are trained in MPA enforcement and devote some patrol time to this area.

Baseline and ongoing monitoring and research studies: None found

Basic Evaluation: Provides some level of protection for most invertebrates, all plants and some fishes in a southern California coastal nearshore reef habitat. Heavy public use within the site and nearby, including illegal take and incidental trampling, within the site and nearby, and allowing most game species to be taken may have limited the effectiveness of protection. Enforcement presence often limited to times of highest use, while impacts incidental to visitation such as trampling are not the result of illegal activity. Local governments (Orange County Coastal Coalition) are interested in maintaining and increasing resource protection here.

Published references related to effectiveness of this MPA: 122, 127

Unpublished references related to effectiveness of this MPA: 185, 87, 173

Unpublished references related to use of this MPA as a research tool: 185, 87, 172, 173

Site name: Niguel State Marine Park

Year established: 1971

Approximate Area: 0.41 nm²

Approximate Shoreline length: 2.0 nm

Approximate Depth range (feet): 0 to 60

Habitat types: Substrate at this site is approximately 50% hard and 50% soft with some rocky points, offshore rocks and sandy beaches.

Surrounding habitat types: Rocky points and sandy coves to the north, major rocky headland (Dana Pt MLR) with extensive subtidal reefs to the south, Kelp forest and reef habitat and sandy areas offshore.

Summary of existing regulations: Take of all living marine resources is prohibited except the recreational take of: lobster, rockfish (family Scorpaenidae), greenling, lingcod, cabezon, yellowtail, mackerel, bluefin tuna, kelp bass, spotted sand bass, barred sand bass, sargo, croaker, queenfish, corbina, white seabass, opaleye, halfmoon, surfperch (family Embiotocidae), blacksmith, barracuda, sheephead, bonito, California halibut, sole, turbot, and sanddab.

Primary objectives: This area was originally designated as a marine life refuge. Although no specific objectives were provided for the marine life refuge designation, Fish and Game Code Section 10500 states that "Except under specific permit or authorization, it is unlawful: (f) To take or possess any invertebrate or specimen of marine plant life in a marine life refuge." In addition, individual marine life refuges may have been established for a variety of site specific purposes. This and several other marine life refuges along the Orange County coast were established in the late 1960's and 1970's to primarily protect intertidal organisms from collecting by the general public and large educational groups.

Existing Enforcement: Included as part of normal Department of Fish and Game marine patrol activities for this general area based on available patrol resources and level of fishery activity in the area. City of Laguna Beach lifeguards are trained in MPA regulations and will issue advisories and warnings, if needed. Orange County Sheriff Deputies are trained in MPA enforcement and devote some patrol time to this area.

Baseline and ongoing monitoring and research studies: None found

Basic Evaluation: Provides some level of protection for most invertebrates, all plants and some fishes in a southern California coastal nearshore reef habitat. Heavy public use within the site and nearby, including illegal take and incidental trampling, and allowing most game species to be taken may have limited the effectiveness of protection. Enforcement presence often limited to times of highest use, while impacts incidental to visitation such as trampling are not the result of illegal activity. Local governments (Orange County Coastal Coalition) are interested in maintaining and increasing resource protection here.

Published references related to effectiveness of this MPA: 122, 127

Unpublished references related to effectiveness of this MPA: 185, 87, 173

Published references related to use of this MPA as a research tool: 38, 39, 189, 127, 208

Unpublished references related to use of this MPA as a research tool: 185, 87, 172, 173

Site name: Dana Point State Marine Park

Year established: 1969

Approximate Area: 0.16 nm²

Approximate Shoreline length: 0.56 nm

Approximate Depth range (feet): 0 to 60

Habitat types: Substrate at this site is approximately 90% hard and 10% soft with extensive rocky intertidal and subtidal reefs.

Surrounding habitat types: Sandy beach with offshore kelp forest and reefs to the north. Sandy areas with scattered reefs and rock breakwater to the southeast. Kelp forest and reefs with sandy areas offshore.

Summary of existing regulations: Take of all living marine resources is prohibited except the recreational take the following species below the mean lower low-water mark: lobster, rockfish (family Scorpaenidae), greenling, lingcod, cabezon, yellowtail, mackerel, bluefin tuna, kelp bass, spotted sand bass, barred sand bass, sargo, croaker, queenfish, corbina, white seabass, opaleye, halfmoon, surfperch (family Embiotocidae), blacksmith, barracuda, sheephead, bonito, California halibut, sole, turbot, and sanddab.

It is unlawful to enter the intertidal zone in the Dana Point State Marine Park for the purpose of taking or possessing, or to take or possess, any species of fish, plant, or invertebrate, or part thereof; to use or have in possession any contrivance designed to be used for catching fish; to disturb any native plant, fish, wildlife, aquatic organism; or to take or disturb any natural geological feature. This subdivision does not prohibit persons from entering the intertidal zone for the purpose of entertainment, recreation, and education while having a minimum impact on the intertidal environment and the living organisms therein. For this purpose, minimum impact includes foot traffic; general observation of organisms in their environment with immediate replacement of any unattached organisms to their natural location after temporary lifting for examination; and photography. Minimum impact does not include removal of attached organisms from their environment; gathering of fishing bait; littering, collecting rocks and shells; or turning rocks or other acts destructive to the environment.

Primary objectives: This area was originally designated as a marine life refuge. Although no specific objectives were provided for the marine life refuge designation, Fish and Game Code Section 10500 states that "Except under specific permit or authorization, it is unlawful: (f) To take or possess any invertebrate or specimen of marine plant life in a marine life refuge." In addition, individual marine life refuges may have been established for a variety of site specific purposes. This and several other marine life refuges along the Orange County coast were established in the late 1960's and 1970's to primarily protect intertidal organisms from collecting by the general public and large educational groups. A specific purpose for the Dana Point Marine Life Refuge was the complete protection from take of the intertidal zone in 1993 to provide improved opportunities for educational and research activities associated with the adjacent Orange County Ocean Institute.

Existing Enforcement: Included as part of normal Department of Fish and Game marine patrol activities for this general area based on available patrol resources and level of fishery activity in the area. Orange County Sheriff Deputies are trained in MPA enforcement and devote some patrol time to this area. Ocean Institute staff and volunteers are frequently present in the Park conducting tours and monitoring visitor behavior which adds a layer of de facto enforcement.

Baseline and ongoing monitoring and research studies: The Ocean Institute monitors transects for status of a number of intertidal organisms, and also monitors intensity of usage by visitors. Mark Littler established a site at Dana Point during the 1975-79 BLM-sponsored studies of rocky intertidal biota. Steve Murray of CSU Fullerton recently re-assessed the distributions and abundances of rocky intertidal populations at Dana Point to examine decadal scale changes in intertidal systems.

Basic Evaluation: Provides some level of protection for most invertebrates, all plants and some fishes in an extensive southern California coastal nearshore reef habitat. Complete protection of marine life in the extensive rocky intertidal zone. Site is adjacent to and supervised by the Ocean Institute which conducts public educational programs and monitoring and research efforts in the site. Such programs have provided more protection for intertidal organisms compared to other MPAs nearby. Despite these efforts, heavy public use within the site and nearby, including illegal take and incidental trampling, and allowing most game species to be taken in the subtidal has limited the effectiveness of protection. Enforcement presence often limited to times of highest use, while impacts incidental to visitation such as trampling are not the result of illegal activity. Local governments (Orange County Coastal Coalition) are interested in maintaining and increasing resource protection here.

Published references related to effectiveness of this MPA: 122, 127

Unpublished references related to effectiveness of this MPA: 185, 87, 173

Published references related to use of this MPA as a research tool: 127

Unpublished references related to use of this MPA as a research tool: 185, 87, 172, 173

Site name: Doheny State Marine Park

Year established: 1969

Approximate Area: 0.11 nm²

Approximate Shoreline length: 1.09 nm

Approximate Depth range (feet): 0 to 60

Overlapping area: Doheny State Marine Conservation Area

Habitat types: Primarily sand. At minus tides some rocks are exposed. Subtidally there are small rocks with *Egregia* sp. Jetty rocks on east side.

Surrounding habitat types: Rock jetty and breakwater to the northwest. Extensive sandy beach to the south. Mostly sandy offshore with a few scattered reefs.

Summary of existing regulations: Take of all living marine resources is prohibited except the recreational take of: lobster, rockfish (family Scorpaenidae), greenling, lingcod, cabezon, yellowtail, mackerel, bluefin tuna, kelp bass, spotted sand bass, barred sand bass, sargo, croaker, queenfish, corbina, white seabass, opaleye, halfmoon, surfperch (family Embiotocidae), blacksmith, barracuda, sheephead, bonito, California halibut, sole, turbot, and sanddab.

Primary objectives: This area was originally designated as a marine life refuge. Although no specific objectives were provided for the marine life refuge designation, Fish and Game Code Section 10500 states that "Except under specific permit or authorization, it is unlawful: (f) To take or possess any invertebrate or specimen of marine plant life in a marine life refuge." In addition, individual marine life refuges may have been established for a variety of site specific purposes. This and several other marine life refuges along the Orange County coast were established in the late 1960's and 1970's to primarily protect intertidal organisms from collecting by the general public and large educational groups.

Existing Enforcement: Included as part of normal Department of Fish and Game marine patrol activities for this general area based on available patrol resources and level of fishery activity in the area. State Park rangers, lifeguards and other staff provide an added on-site enforcement presence.

Baseline and ongoing monitoring and research studies: None found

Basic Evaluation: Provides a somewhat higher level of protection than the overlapping state marine conservation area for some invertebrates and all plants in a sandy beach area with a limited amount of rocky habitat. The Department of Parks and Recreation provides interpretive programs and educational displays. Heavy public use within the site and nearby, including illegal take and incidental trampling, and allowing most game species to be taken has limited effectiveness of protection. Enforcement presence often limited to times of highest use, while impacts incidental to visitation such as trampling are not the result of illegal activity. San Juan Creek discharges into site bringing contamination from urban runoff. Local governments (Orange County Coastal Coalition) are interested in maintaining and increasing resource protection here.

Site name: Doheny State Marine Conservation Area

Year established: 1970

Approximate Area: 0.16 nm²

Approximate Shoreline length: 1.09 nm

Approximate Depth range (feet): 0 to 60

Overlapping area: Doheny State Marine Park

Habitat types: Primarily sand. At minus tides some rocks are exposed. Subtidally there are small rocks with *Egregia*. No *Macrocystis* beds. Jetty rocks on east side.

Surrounding habitat types: Rock jetty and breakwater to the northwest. Extensive sandy beach to the south. Mostly sandy offshore with a few scattered reefs.

Summary of existing regulations: No recreational take of living or non-living marine resources is allowed except: finfish, chiones, clams, cockles, rock scallops, native oysters, crabs, lobsters, ghost shrimp, sea urchins, mussels and marine worms except that no worms may be taken in any mussel bed unless taken incidentally to the take of mussels. Commercial take is allowed.

Primary objectives: To provide additional protection to marine life and habitat within the state beach and to inform the public about the local marine life and need for protection.

Existing Enforcement: Included as part of normal Department of Fish and Game marine patrol activities for this general area based on available patrol resources and level of fishery activity in the area. State Park rangers, lifeguards and other staff provide added on-site enforcement presence.

Baseline and ongoing monitoring and research studies: None found

Basic Evaluation: Provides some level of protection for some invertebrates and all plants in a sandy beach area with a limited amount of rocky habitat. The Department of Parks and Recreation provides interpretive programs and educational displays. Heavy public use within the site and nearby, including illegal take and incidental trampling, and allowing most game species to be taken has limited effectiveness of protection. Enforcement presence often limited to times of highest use, while impacts incidental to visitation such as trampling are not the result of illegal activity. Even protecting all species may not be effective without added enforcement presence and increased public awareness of impacts due to visitation. Increasing the level of protection within current boundaries could improve ecosystem and biodiversity maintenance functions. Expansion of site farther offshore may not be practical due to conflicts with existing commercial and recreational fisheries use. San Juan Creek discharges into site bringing contamination from urban runoff. Local governments (Orange County Coastal Coalition) are interested in maintaining and increasing resource protection.